

Recovery Plan Action Status

Plan Name: Approved Recovery Plan for the Copperbelly Water Snake Northern Distinct Population Segment

Plan Status: Final

Plan Date: 23-Dec-08

Lead Agency: USFWS

Lead Office: East Lansing Ecological Services Field Office

(517)
351-2555)

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Copperbelly water snake (Nerodia erythrogaster neglecta)	1	1.1	Develop landscape-level habitat characterization of copperbelly water snake habitat	Ongoing Current	FY 2007		USFWS Ecological Services Program, Universities and Research Institutions	Work type not yet selected	Labor type not yet selected	
Copperbelly water snake (Nerodia erythrogaster neglecta)	2	1.2	Predict other areas that may contain copperbellies	Ongoing Current	FY 2008		USFWS Ecological Services Program, Universities and Research Institutions	Work type not yet selected	Labor type not yet selected	Completion of this action is contingent upon completion of Recovery Action 3.1. Costs for FY 2012-2039 are TBD.
Copperbelly water snake (Nerodia erythrogaster neglecta)	1	1.3	Identify focal management areas for application of restoration and conservation actions	Ongoing Not Current	FY 2008		Michigan Department of Natural Resources, Indiana Department of Natural Resources, Local Governments, Ohio Department of Natural Resources, Natural Resources Conservation Service, USFWS Ecological Services Program, USFWS Partners for Fish and Wildlife Program, Other individuals or groups willing to participate (e.g., landowners), Universities and Research Institutions	Work type not yet selected	Labor type not yet selected	Action Duration: Ongoing; three more years needed. Estimated Costs: Cost for FY2012 represents estimated costs for FY2012-2039. Areas should be identified in which to efficiently focus efforts and expend limited resources efficiently.
Copperbelly water snake (Nerodia erythrogaster neglecta)	1	1.4.1	Develop guidelines for habitat restoration and enhancement	Ongoing Not Current	FY 2009		USFWS Ecological Services Program, USFWS Partners for Fish and Wildlife Program, Universities and Research Institutions	Work type not yet selected	Labor type not yet selected	Action Duration: Ongoing; three more years needed.

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Copperbelly water snake (Nerodia erythrogaster neglecta)	1	1.4.2	Work with community leaders, landowners, and state and Federal agency private land programs, conservation organizations, and other cooperators to restore suitable wetlands and associated uplands for the copperbelly	Ongoing Current	FY 2005		Michigan Department of Natural Resources, Indiana Department of Natural Resources, Local Governments, Ohio Department of Natural Resources, Natural Resources Conservation Service, USFWS Ecological Services Program, USFWS Partners for Fish and Wildlife Program, Other individuals or groups willing to participate (e.g., landowners), Universities and Research Institutions, Local Conservation Organizations and other non-profits	Work type not yet selected	Labor type not yet selected	Action Duration: Ongoing; twenty more years needed. Estimated Costs: Costs for FY 2012-2039 are TBD. Total cost estimate is 300+ in the Plan
Copperbelly water snake (Nerodia erythrogaster neglecta)	1	1.5.1	Identify critical road, agricultural, residential, other man-made features and activities, or natural features that may adversely affect copperbelly water snake	Not Started			Michigan Department of Natural Resources, Indiana Department of Natural Resources, Local Governments, Ohio Department of Natural Resources, Natural Resources Conservation Service, USFWS Ecological Services Program, USFWS Partners for Fish and Wildlife Program, Other individuals or groups willing to participate (e.g., landowners), Universities and Research Institutions, Local Conservation Organizations and other non-profits	Work type not yet selected	Labor type not yet selected	Cost for FY2012 represents estimated costs for FY2012-2039. Initial efforts will involve identification of threats at known sites. Once threats are fully identified, efforts will be implemented to remove or reduce threats. Estimated costs do not include cost for other actions explicitly identified in the plan (e.g., habitat restoration and enhancement).

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Copperbelly water snake (Nerodia erythrogaster neglecta)	1	1.5.2	Clarify influence of roads on migration of individual snakes and the connectivity of populations	Ongoing Current	FY 2011		USFWS Ecological Services Program, Universities and Research Institutions	Work type not yet selected	Labor type not yet selected	Estimated Costs: Cost for FY2012 represents estimated costs for FY2012-2039.
Copperbelly water snake (Nerodia erythrogaster neglecta)	1	1.5.3	For identified threats, assess the relevant importance to a population	Not Started			USFWS Ecological Services Program, Universities and Research Institutions	Work type not yet selected	Labor type not yet selected	Estimated Costs: Cost for FY2012 represents estimated costs for FY2012-2039.
Copperbelly water snake (Nerodia erythrogaster neglecta)	1	1.5.4	Research and implement techniques to create road crossings for snakes to reduce road mortality and remove barriers to movement	Ongoing Current	FY 2011		USFWS Ecological Services Program, Universities and Research Institutions	Research: Management Techniques	Labor type not yet selected	Estimated Costs: Cost for FY2012 represents estimated costs for FY2012-2039.
Copperbelly water snake (Nerodia erythrogaster neglecta)	1	1.5.5	Develop and implement techniques to avoid or reduce other significant identified threats	Not Started			USFWS Ecological Services Program, Universities and Research Institutions	Work type not yet selected	Labor type not yet selected	Estimated Costs: Cost for FY2012 represents estimated costs for FY2012-2039.
Copperbelly water snake (Nerodia erythrogaster neglecta)	1	1.6	Develop and implement habitat conservation programs (e.g., landowner contact, voluntary registration and conservation agreements with landowners)	Not Started			Michigan Department of Natural Resources, Indiana Department of Natural Resources, Local Governments, Ohio Department of Natural Resources, Natural Resources Conservation Service, USFWS Ecological Services Program, USFWS Partners for Fish and Wildlife Program, Other individuals or groups willing to participate (e.g., landowners), Universities and Research Institutions	Work type not yet selected	Labor type not yet selected	Estimated Costs: Cost for FY2012 represents estimated costs for FY2012-2039. Success highly dependent on overall education and outreach.
Copperbelly water snake (Nerodia erythrogaster neglecta)	2	1.7.1	Develop and maintain boundaries of focal management areas	Not Started			USFWS Ecological Services Program, Universities and Research Institutions	Work type not yet selected	Labor type not yet selected	

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Copperbelly water snake (Nerodia erythrogaster neglecta)	1	1.7.2	Prioritize properties for conservation easements and acquisition and purchase, protect, and/or manage these properties based on priority and availability	Not Started			Michigan Department of Natural Resources, Indiana Department of Natural Resources, Local Governments, Ohio Department of Natural Resources, Natural Resources Conservation Service, USFWS Ecological Services Program, Other individuals or groups willing to participate (e.g., landowners), Universities and Research Institutions, Local Conservation Organizations and other non-profits	Work type not yet selected	Labor type not yet selected	Cost for acquisition will depend on availability of willing landowners. Costs for FY2012-2039 are TBD. Total cost estimate is actually 20+ in the Plan.
Copperbelly water snake (Nerodia erythrogaster neglecta)	2	2.1.1	Develop standard techniques for ascertaining presence/absence of copperbelly water snake	Ongoing Current	FY 2006		USFWS Ecological Services Program, Universities and Research Institutions	Work type not yet selected	Labor type not yet selected	Estimated Costs: Cost for FY2012 represents estimated costs for FY2012-2039.
Copperbelly water snake (Nerodia erythrogaster neglecta)	2	2.1.2	Develop standard techniques for estimating population size for copperbelly water snake populations	Ongoing Current	FY 2011		USFWS Ecological Services Program, Universities and Research Institutions	Work type not yet selected	Labor type not yet selected	Estimated Costs: Cost for FY2012 represents estimated costs for FY2012-2039.
Copperbelly water snake (Nerodia erythrogaster neglecta)	2	2.1.3	Develop a standard approach using GIS to monitor availability and extent of suitable habitat landscape	Ongoing Current	FY 2011		USFWS Ecological Services Program, Universities and Research Institutions	Work type not yet selected	Labor type not yet selected	
Copperbelly water snake (Nerodia erythrogaster neglecta)	2	2.2.1	Monitor known populations and landscapes potentially having copperbelly water snake: West Branch (OH, MI)	Ongoing Current	FY 2011		USFWS Ecological Services Program, Other individuals or groups willing to participate (e.g., landowners), Universities and Research Institutions, Local Conservation Organizations and other non-profits	Work type not yet selected	Labor type not yet selected	Action Duration: Continues throughout 30 years. Estimated Costs: Cost for FY2012 represents estimated costs for FY2012-2039.

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Copperbelly water snake (Nerodia erythrogaster neglecta)	2	2.2.2	Monitor known populations and landscapes potentially having copperbelly water snake: Clear Fork (MI)	Ongoing Current	FY 2011		USFWS Ecological Services Program, Other individuals or groups willing to participate (e.g., landowners), Universities and Research Institutions, Local Conservation Organizations and other non-profits	Work type not yet selected	Labor type not yet selected	Action Duration: Continues throughout 30 years. Estimated Costs: Cost for FY2012 represents estimated costs for FY2012-2039.
Copperbelly water snake (Nerodia erythrogaster neglecta)	2	2.2.3	Monitor known populations and landscapes potentially having copperbelly water snake: Fish Creek (IN, OH)	Ongoing Current	FY 2011		USFWS Ecological Services Program, Other individuals or groups willing to participate (e.g., landowners), Universities and Research Institutions, Local Conservation Organizations and other non-profits	Work type not yet selected	Labor type not yet selected	Action Duration: Continues throughout 30 years. Estimated Costs: Cost for FY2012 represents estimated costs for FY2012-2039.
Copperbelly water snake (Nerodia erythrogaster neglecta)	2	2.3.1	Survey historic and potential sites for copperbelly water snake: Clear Lake (IN, MI)	Not Started			USFWS Ecological Services Program, Other individuals or groups willing to participate (e.g., landowners), Universities and Research Institutions, Local Conservation Organizations and other non-profits	Work type not yet selected	Labor type not yet selected	Action Duration: Continues throughout 30 years. Estimated Costs: Cost for FY2012 represents estimated costs for FY2012-2039.
Copperbelly water snake (Nerodia erythrogaster neglecta)	2	2.3.2	Survey historic and potential sites for copperbelly water snake: Jones (MI)	Not Started			USFWS Ecological Services Program, Other individuals or groups willing to participate (e.g., landowners), Universities and Research Institutions, Local Conservation Organizations and other non-profits	Work type not yet selected	Labor type not yet selected	Action Duration: Continues throughout 30 years. Estimated Costs: Cost for FY2012 represents estimated costs for FY2012-2039.
Copperbelly water snake (Nerodia erythrogaster neglecta)	2	3.1	Clarify characteristics of high quality hibernacula	Not Started			USFWS Ecological Services Program, Universities and Research Institutions	Work type not yet selected	Labor type not yet selected	Estimated Costs: Cost for FY2012 represents estimated costs for FY2012-2039.

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Copperbelly water snake (Nerodia erythrogaster neglecta)	2	3.2	Clarify gestation site requirements	Not Started			USFWS Ecological Services Program, Universities and Research Institutions	Work type not yet selected	Labor type not yet selected	Estimated Costs: Cost for FY2012 represents estimated costs for FY2012-2039.
Copperbelly water snake (Nerodia erythrogaster neglecta)	2	3.3	Establish genetic relationships among populations and determine level of inbreeding	Ongoing Not Current	FY 2008		USFWS Ecological Services Program, Universities and Research Institutions	Work type not yet selected	Labor type not yet selected	Estimated Costs: Cost for FY2012 represents estimated costs for FY2012-2039.
Copperbelly water snake (Nerodia erythrogaster neglecta)	2	3.4	Examine other factors potentially limiting the species' numbers and range	Not Started			USFWS Ecological Services Program, Universities and Research Institutions	Work type not yet selected	Labor type not yet selected	Estimated Costs: Cost for FY2012 represents estimated costs for FY2012-2039.
Copperbelly water snake (Nerodia erythrogaster neglecta)	2	4.1	Develop and implement techniques for enhancing remaining populations by increasing recruitment and reducing mortality	Ongoing Current	FY 2007		USFWS Ecological Services Program, Universities and Research Institutions	Work type not yet selected	Labor type not yet selected	Action Duration: To Be Determined
Copperbelly water snake (Nerodia erythrogaster neglecta)	2	4.2	Evaluate translocation as a method of population augmentation, and discuss potential for reintroductions into historic/suitable habitats	Not Started			Michigan Department of Natural Resources, Indiana Department of Natural Resources, Local Governments, Ohio Department of Natural Resources, Natural Resources Conservation Service, USFWS Ecological Services Program, Other individuals or groups willing to participate (e.g., landowners), Universities and Research Institutions, Local Conservation Organizations and other non-profits	Work type not yet selected	Labor type not yet selected	Action Duration: To Be Determined. Estimated Costs: Costs for years 2012-2039 will depend on the success of Action 4.1 and availability of willing landowners for potential reintroductions. Costs for FY 2012-2039 are TBD. Total cost estimate is actually 90+ in the Plan.
Copperbelly water snake (Nerodia erythrogaster neglecta)	3	5.1	Maintain lists of stakeholders	Not Started			Local Governments, USFWS Ecological Services Program	Work type not yet selected	Labor type not yet selected	Estimated Costs: Cost for FY2012 represents estimated costs for FY2012-2039.

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Copperbelly water snake (Nerodia erythrogaster neglecta)	3	5.2.1.1	Publish and distribute a semiannual newsletter to local residents, visitors, and government agency personnel	Not Started			Michigan Department of Natural Resources, Indiana Department of Natural Resources, Local Governments, Ohio Department of Natural Resources, USFWS Ecological Services Program, Other individuals or groups willing to participate (e.g., landowners), Universities and Research Institutions, Local Conservation Organizations and other non-profits	Work type not yet selected	Labor type not yet selected	Estimated Costs: Cost for FY2012 represents estimated costs for FY2012-2039.
Copperbelly water snake (Nerodia erythrogaster neglecta)	3	5.2.1.2	Develop and deliver educational presentations about the copperbelly water snake	Not Started			Michigan Department of Natural Resources, Indiana Department of Natural Resources, Local Governments, Ohio Department of Natural Resources, USFWS Ecological Services Program, Universities and Research Institutions, Local Conservation Organizations and other non-profits	Work type not yet selected	Labor type not yet selected	Estimated Costs: Cost for FY2012 represents estimated costs for FY2012-2039.
Copperbelly water snake (Nerodia erythrogaster neglecta)	3	5.2.1.3	Promote positive media coverage regarding copperbelly water snake issues	Not Started			Michigan Department of Natural Resources, Indiana Department of Natural Resources, Local Governments, Ohio Department of Natural Resources, USFWS Ecological Services Program, Universities and Research Institutions, Local Conservation Organizations and other non-profits	Work type not yet selected	Labor type not yet selected	Estimated Costs: Cost for FY2012 represents estimated costs for FY2012-2039.

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Copperbelly water snake (Nerodia erythrogaster neglecta)	3	5.2.2	Establish mechanisms for dissemination of information	Not Started			Michigan Department of Natural Resources, Indiana Department of Natural Resources, Ohio Department of Natural Resources, USFWS Ecological Services Program, Universities and Research Institutions	Work type not yet selected	Labor type not yet selected	Estimated Costs: Cost for FY2012 represents estimated costs for FY2012-2039.
Copperbelly water snake (Nerodia erythrogaster neglecta)	2	6.1	Convene meetings of researchers, state and Federal agency personnel, and other stakeholders to evaluate progress and identify additional recovery needs	Ongoing Current	FY 2008		Michigan Department of Natural Resources, Indiana Department of Natural Resources, Local Governments, Ohio Department of Natural Resources, Natural Resources Conservation Service, USFWS Ecological Services Program, Other individuals or groups willing to participate (e.g., landowners), Universities and Research Institutions, Local Conservation Organizations and other non-profits	Work type not yet selected	Labor type not yet selected	Estimated Costs: Cost for FY2012 represents estimated costs for FY2012-2039.
Copperbelly water snake (Nerodia erythrogaster neglecta)	3	6.2	Review Recovery Plan and update or revise as needed and as resources allow	Not Started			USFWS Ecological Services Program	Work type not yet selected	Labor type not yet selected	Estimated Costs: Cost for FY2012 represents estimated costs for FY2012-2039.
Copperbelly water snake (Nerodia erythrogaster neglecta)	3	7	Develop a plan to monitor copperbelly water snake after it is delisted	Not Started			USFWS Ecological Services Program	Work type not yet selected	Labor type not yet selected	Estimated Costs: Cost for FY2012 represents estimated costs for FY2012-2039.